

RANDOM ACCESS FOR WIRELESS MULTIPLE-ACCESS COMMUNICATION SYSTEMS

ABSTRACT

Techniques for facilitating random access in wireless multiple-access communication systems. A random access channel (RACH) is defined to comprise a "fast" RACH (F-RACH) and a "slow" RACH (S-RACH). The F-RACH and S-RACH can efficiently support user terminals in different operating states and employ different designs. The F-RACH can be used to quickly access the system, and the S-RACH is more robust and can support user terminals in various operating states and conditions. The F-RACH may be used by user terminals that have registered with the system and can compensate for their round trip delays (RTDs) by properly advancing their transmit timing. The S-RACH may be used by user terminals that may or may not have registered with the system, and may or may not be able to compensate for their RTDs. The user terminals may use the F-RACH or S-RACH, or both, to gain access to the system.